

R E M A R K S

Claims 5-8 and 13-17 are pending in the present application. The Applicants have amended the specification to clarify the definition of the R groups, in accordance with the Examiner's request. This amendment does not add new matter, as the Applicants are simply replacing the structure on page 7 with a description of it. The Applicants have also amended Claims 5 and 13 to correspond to the amendments to the specification. Marked up versions of the amended paragraph and of the claims, showing all the changes relative to the previous version of the paragraphs and claims, are provided on separate pages at the end of this Response, in accordance with 37 CFR 1.121(b)(1)(iii) and 1.121(c)(1)(ii). For the Examiner's convenience, the Applicant's have provided Courtesy Copy of a clean set of claims, amended as proposed, following this Response after the pages with the marked up versions of the amended paragraph and claims.

The rejection in the first Office Action (mailed July 5, 2000) of Claims 5-8 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite has been implicitly withdrawn, as it was not repeated in the final Office Action. The rejection in the first Office Action of Claims 5-8 under 35 U.S.C. §103 as allegedly obvious over Timmerman *et al.* (WO98/49129) in view of Cook *et al.* (U.S. 5,554,646) has also been implicitly withdrawn, as it was also not repeated in the final Office Action.

The following objections and rejections are at issue and are set forth by number in the order they are herein addressed:

- 1) The disclosure is objected to on the grounds that the R groups as shown on page 7 are improperly defined.
- 2) Claims 5-8 are rejected under 35 U.S.C. §103 as allegedly obvious over Nilsen *et al.* (U.S. Pat. No. 5,885,594) in view of Cook *et al.* (U.S. Pat. No. 5,554,646).

Applicants believe the present amendments and following remarks traverse the Examiner's objection to the specification and rejection of the claims.

1. The Specification Has Been Amended to Properly Define R Groups

The Specification has been amended in response to the Examiner's objection to an informality. The structure has been deleted and replaced by a description of the structure;

such a description is believed to be acceptable to the USPTO as it is found in the claims of US Patent No. 5,885,594, which was cited by the Examiner in the rejection of the claims for obviousness.

2. The Claims are Not Obvious

Claims 5-8 and 13-17 are rejected under 35 U.S.C. §103 as allegedly being obvious over Nilsen *et al.* (U.S. Pat. No. 5,885,594) in view of Cook *et al.* (U.S. Pat. No. 5,554,646), for reasons stated to be "essentially the same as set forth in the prior office action" (Office Action, page 2). In the first Office Action, the Examiner asserted that Nilsen *et al.* teach a composition comprising 90-100% acylglycerol wherein the fatty acid radical is a conjugated polyunsaturated fatty acid radical, and where the preferred fatty acid is defined as c9, t11-octadecadienoic acid and/or c10, t12 octadecadienoic acid (first Office Action, page 4). The Examiner further asserts that Cook *et al.* teaches that "both c9, t11-octadecadienoic acid and c10, t12 octadecadienoic acid, **and as well their mixture** are known to be beneficial for animal health" (first Office Action, page 4, emphasis added). In response to the Applicants' arguments that there is no suggestion to combine the references, the Examiner asserts that "Cook teaches the usefulness of the particular isomers herein. Therefore a person of ordinary skill in the art would have been motivated to **use** such isomers in the **composition** in the primary reference" (Office Action, page 3, emphasis added). The Examiner further asserts that "[m]ixing to known compounds is seen to be obvious" and that "**purification** of a known compound is considered within the skill of artisan" (Office Action, pages 3-4, emphasis added).

The Examiner is well aware that there are THREE requirements to establish a *prima facie* case of obviousness, and that ALL THREE MUST BE MET by the Examiner. Failure to establish any one of these three requirements precludes finding of a *prima facie* case of obviousness, and, without more, entitles the Applicants to allowance of the claims at issue. These three requirements are first, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when

combined) must teach or suggest all the claim limitations. (MPEP § 2143). The claims are not obvious as the prior art cited by the Examiner satisfies none of the three elements above.

A. The Cited References Do Not Teach Each Element of the Claims

The THIRD requirement to establish a *prima facie* case of obviousness is that the cited references when combined must teach or suggest all of the claim limitations.

The claimed invention is directed to subject matter comprising an acylglycerol composition characterized in containing at least approximately 30% t10,c12 octadecadienoic acids, at least approximately 30% c9,t11 octadecadienoic acids, and about less than 1% total of 8,10 octadecadienoic acid, 11,13 octadecadienoic and trans-trans octadecadienoic acid residues at positions R₁, R₂, and R₃, wherein said percentages are peak area percentages as determined by gas chromatography. **Neither reference** cited by the Examiner teaches these elements. And that is because they couldn't.

The Applicants discovered a PROBLEM with CLA products made by conventional approaches; the problem is the heterogeneity and the substantial variation in isoforms from batch to batch of the CLA (see, for example, specification page 4, lines 9-10). The Applicants SOLVED the problem with a NOVEL COMPOSITION of isomerized fatty acids. But in order to obtain the novel compositions, it was necessary to develop a NOVEL METHOD of isomerization. The fatty acids of the novel composition are prepared by employing the novel method, which is a carefully controlled reaction, and which results in a high percentage of linoleic acid converted primarily to the conjugated c9,t11 and t10,c12 isomers so that less than a combined 1 percent of the 11,13 isomers, less than 1 percent of the 8,10 isomers, less than 1 percent of the double trans species, and less than 1 percent total unidentified linoleic acid species is present (see, for example, specification page 5, lines 5-14). This is IN CONTRAST to conventional compositions. In fact the Applicants specify that the 1 percent limit in concentration of the 11,13; 8,10; and trans-trans isomers serves as a convenient and practical **quality assurance standard of purity** (see, for example, specification page 5, lines 11-14, emphasis added).

The references cited by the Examiner are completely silent with respect to the AMOUNTS of the conjugated c9,t11 and t10,c12 isomers present in the compositions, much less the AMOUNTS of the 11,13; 8,10; and trans-trans isomers. The Examiner admitted in

the first Office Action that Nilsen *et al.* do not teach the specific amounts of each of the two isomers. In fact, Nilsen *et al.* does not even describe how such isomers may be produced or even where such isomers may be obtained, but simply states the acylglycerol compounds may be derived from "specific mixtures of fatty acids" (column 6, lines 33-55). Moreover, Cook *et al.* simply states that the "c9,t11- and t10,c12-isomers are predominantly produced," and that the "remaining two c,c isomers are minor contributors," but the reference provides absolutely no support for this statement (column 4, lines 53-59). Cook *et al.* goes on to state that there is a "relatively higher distribution of the t,t isomers of 9,11- or 10,12-octadecadienoic acid" apparently resulting from an extended processing time (column 4, lines 60-64). Thus, the only information are that the trans isomers are present to a relatively high degree, which is in contrast to the Applicants composition.

Cook *et al.* provides a method for producing the conjugated linoleic acid, which is to mix ethylene glycol, KOH, and the source oil, and heat the mixture at 180 degrees C for 2.5 hours (see Example 1, column 2, lines 11-28). The Applicants have discovered that propylene glycol is superior to ethylene glycol, based on its heating properties and patterns of isomerization, and its use avoids toxicity (see, for example, page 5, line 30 to page 6, line 1 and page 6, lines 9-10). Moreover, the Applicants have discovered that higher temperatures result in the production of less of the desirable isomers and more of the undesirable isomers. This is demonstrated by Examples 1 and 3; in Example 1, isomerization was achieved by mixing propylene glycol and KOH with the source oil, and the mixture reacted at 150 degrees C for 3.5 hours, whereas in Example 3 the same mixture was reacted at 210 degrees for 1 hour. The products of both reactions were analyzed, and the results presented in Table 10. The reaction products from Example 1 included 36.51% of c9,t11 isomer and 37.16% of t10,c12 isomer, and 0.73% of t9,t11, and t10,t12 isomers, whereas in Example 3 these same products were less than 15.62%, 12.63% and **29.39%**. Thus, the higher temperature, even at a shorter time, resulted in a **dramatic increase** of undesirable isomers, and a concomitant dramatic decrease of the desirable isomers. These results suggest that the reaction described in Cook *et al.*, which used ethylene glycol instead of propylene glycol, and which proceeded at the higher temperature of 180 degrees, resulted in the production of a high proportion of undesirable isomers.

A 35 USC § 103 rejection is based on 35 USC §§ 102(a), 102(b), 102(e), etc. prior art (MPEP § 2141.01 I.). Before a reference can constitute legally cognizable prior art, it must teach how to make what it discloses; the mere naming of a compound in a reference, without a teaching of how to make it, will not constitute a description of the compound (MPEP § 2121.02, citing *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968)) [look for reference to composition]. The Examiner cites two references, neither of which teaches how to make the composition for which they are cited. Moreover, the Examiner does not describe how the references, even in combination, could produce the novel composition of the claimed invention. The reason is because the references can't. It was the Applicants' discovery of a novel process that resulted in the production of the claimed novel composition. The Examiner asserts that the claims "read on composition made by any process" (Office Action, page 3). That is simply untrue; the conventional processes did NOT produce the claimed composition, because they could not. The Examiner further asserted that "[m]ixing to known compounds is seen to be obvious" (Office Action, page 3). The Applicants couldn't have made the claimed composition prior to their discovery, because the starting products did not exist. Moreover, the Examiner doesn't point to any starting materials which could have been used to make such a mixture. The Examiner further asserts that "purification of a known compound is within the skill of the artisan" (Office Action, pages 3-4), but provides absolutely no support for this statement. Nor are any purification processes provided in either of the cited references.

Because the references, even when combined, do not teach or even suggest all of the claim elements, the Examiner has not met the third requirement for establishing a *prima facie* case of obviousness, and the Applicants respectfully request withdrawal of the rejection of the claims on this basis alone.

B. The Examiner Has Not Established a Motivation to Combine

The FIRST requirement to establish a *prima facie* case of obviousness is to provide a motivation to combine the cited references. The references cannot properly be considered collectively BEFORE the threshold requirement that a person skilled in the art would be motivated to combine these references in the first place is established. The mere fact that references can be combined or modified does not render the resultant combination obvious

unless the prior art suggests the desirability of doing so. (MPEP § 2143.01, citing to *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)).

The Examiner cites as a motivation to combine the secondary reference Cook *et al.* with the primary reference the fact that Cook *et al.* teaches the usefulness of the particular isomers herein, and therefore a person of ordinary skill in the art would have been motivated to **use** such isomers in the composition in the primary reference (Office Action, page 3, emphasis added).

The Examiner's posited motivation is AT MOST a MOTIVATION TO TRY, which without more, is not a suggestion to make the combination, but rather an invitation to experiment. Moreover, as pointed out above, neither reference discloses or even suggests a composition which comprises a specified low level of undesirable isomers, much less how to make such a composition. Therefore, there is no indication of HOW a person of ordinary skill could have even found such isomers to arrive at the claimed invention.

The Examiner has not provided a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Thus, the Examiner has not met the FIRST requirement for establishing a prima facie case of obviousness, and the Applicants respectfully request withdrawal of the rejection of the claims on this basis as well.

C. The Cited References do not Provide Reasonable Expectation of Success

The SECOND requirement to establish a *prima facie* case of obviousness is to show that the combination or modification of the references must have a reasonable likelihood of success (MPEP 2143.02, citing *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)). In an effort to make such a showing the Examiner asserts that the claims read on a composition made by **any** process, and suggests that **mixing** the compounds is obvious, and that **purification** is considered with the skill of the art. (Office Action, page 3, emphasis added). However, the Examiner fails to show HOW the compounds of the compositions could be purified, nor is such information provided by the cited references. Moreover, the Examiner fails to show HOW or WHERE the compounds could be found so that they could be mixed together, and this information is also lacking in the cited references. Finally, as pointed out previously, the composition of the claimed invention could not be achieved

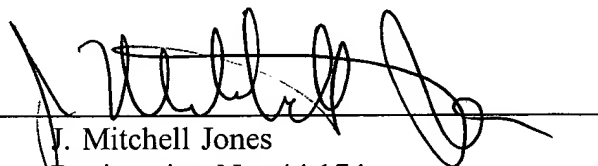
without the Applicants' discovery of the novel process by which to produce it. In fact, the conventional known processes DO NOT result in the claimed composition, as is demonstrated in the Applicants specification (compare, for example, Examples 1 and 3, and the results in Table 10, as described previously). The Examiner is simply making conclusory statements, and has not provided ANY expectation of success, much less a reasonable expectation of success.

Therefore, the Examiner has not established that the combination of references would have a reasonable expectation of successfully achieving the claimed invention, and thus has not met the SECOND requirement to establish a *prima facie* case of obviousness. For this reason as well, the Applicants respectfully request the withdrawal of the rejection of the claims.

CONCLUSION

All grounds of objection and rejection of the Office Action of January 9, 2001, have been addressed, and therefore reconsideration of the application is respectfully requested. It is respectfully submitted that the claims are in condition for allowance. Should the Examiner have any questions, or if a telephone conference would aid in the prosecution of the present application, Applicant encourages the Examiner to call the undersigned collect at 608-218-6900.

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J. Mitchell Jones
Registration No. 44,174

MEDLEN & CARROLL, LLP
220 Montgomery Street, Suite 2200
San Francisco, California 94104
415.705.8410

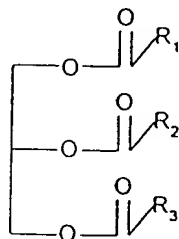
VERSION WITH MARKINGS TO SHOW CHANGES MADE

in accordance with 37 CFR 1.121(b)(1)(iii)

IN THE SPECIFICATION:

The first full paragraph on page 7 has been amended as follows:

In some embodiments, the low impurity CLA described above may be provided as acylglycerols or alkylesters. Accordingly, in some embodiments, an acylglycerol composition is provided which comprises a plurality of acylglycerol molecules [of the structure:



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wherein the acylglycerol molecules comprise substituents R_1 , R_2 , and R_3 attached at the positions of the OH- groups of a glycerol backbone, and

wherein R_1 , R_2 , and R_3 are selected from the group consisting of a hydroxyl group and an octadecadienoic acid [residue], the composition characterized in containing at least approximately 30% t10,c12 octadecadienoic acid [residues], at least approximately 30% c9,t11 octadecadienoic acid [residues], and about less than 1% total of 8,10 octadecadienoic acid, 11,13 octadecadienoic and trans-trans octadecadienoic acid [residues] at positions R_1 , R_2 , and R_3 . Likewise, in other embodiments, a conjugated linoleic acid composition comprising a mixture of esters of conjugated linoleic acid isomers is provided, the mixture containing at least approximately 30% t10,c12 octadecadienoic acid, at least approximately 30% c9,t11 octadecadienoic acid, and about less than 1% total of 8,10 octadecadienoic acid, 11,13 octadecadienoic and trans-trans octadecadienoic acid.

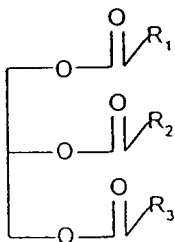
VERSION WITH MARKINGS TO SHOW CHANGES MADE

in accordance with 37 CFR 1.121(c)(1)(ii)

IN THE CLAIMS:

Claims 5 and 13 have been amended as follows:

5. (Amended twice) A biologically active acylglycerol composition comprising a plurality of acylglycerol molecules [of the structure:

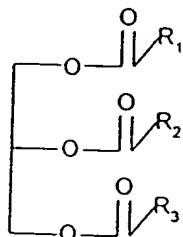


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wherein the acylglycerol molecules comprise substituents R_1 , R_2 , and R_3 attached at the positions of the OH- groups of a glycerol backbone, and

wherein R_1 , R_2 , and R_3 are selected from the group consisting of a hydroxyl group and an octadecadienoic acid [residue], said composition characterized in containing at least approximately 30% t10,c12 octadecadienoic acid [residues], at least approximately 30% c9,t11 octadecadienoic acid [residues], and about less than 1% total of 8,10 octadecadienoic acid, 11,13 octadecadienoic and trans-trans octadecadienoic acid [residues] at positions R_1 , R_2 , and R_3 , wherein said percentages are peak area percentages as determined by gas chromatography.

13. (Amended once) A composition comprising a prepared food product containing a biologically active acylglycerol composition comprising a plurality of acylglycerol molecules [of the structure:



]

wherein the acylglycerol molecules comprise substituents R_1 , R_2 , and R_3 attached at the positions of the OH- groups of a glycerol backbone, and

wherein R_1 , R_2 , and R_3 are selected from the group consisting of a hydroxyl group and an octadecadienoic acid [residue], said composition characterized in containing at least approximately 30% t10,c12 octadecadienoic acid [residues], at least approximately 30% c9,t11 octadecadienoic acid [residues], and about less than 1% total of 8,10 octadecadienoic acid, 11,13 octadecadienoic and trans-trans octadecadienoic acid [residues] at positions R_1 , R_2 , and R_3 , wherein said percentages are peak area percentages as determined by gas chromatography.